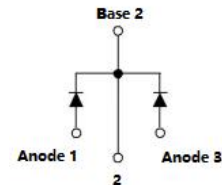


### ESTF80D22U

#### Ultra fast recovery

#### Features

- Ultra-fast recovery
- Very low  $I_{rrm}$
- Very low  $Q_{rr}$
- Specified at operating conditions
- Designed and qualified for industrial level



#### Benefits

- Reduced RFI and EMI
- Reduced power loss in diode and switching transistor
- Higher frequency operation
- Reduced snubbing

#### Applications

- Switching mode power supplies
- UPS
- DC/DC converters
- Free wheeling diodes
- Inverter
- Motor drives

#### Product Summary

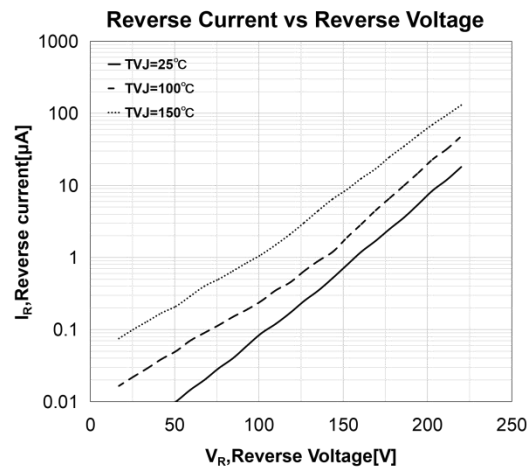
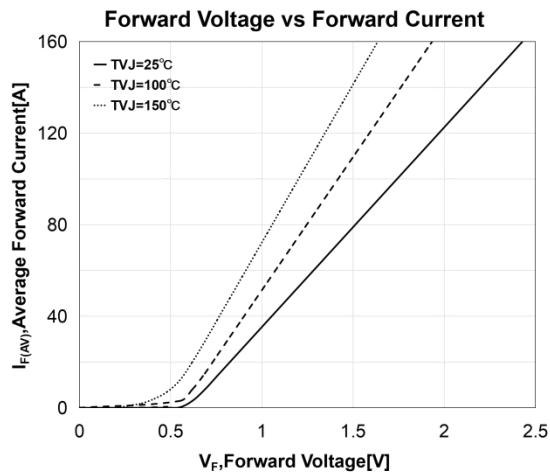
|                       |          |
|-----------------------|----------|
| $V_R$                 | 220V     |
| $V_F$ at 40A at 25 °C | 1.05 V   |
| $I_{F(AV)}$           | 2 x 40 A |
| $t_{rr}$ (typical)    | 22 ns    |
| $T_J$ (maximum)       | 150 °C   |
| $Q_{rr}$ (typical)    | 50 nC    |
| $I_{RRM}$ (typical)   | 3.5 A    |

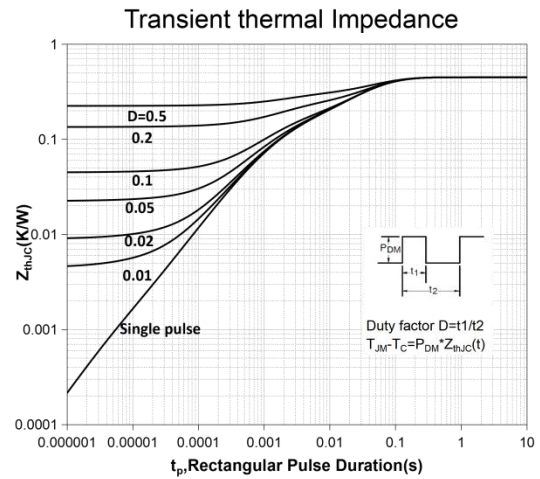
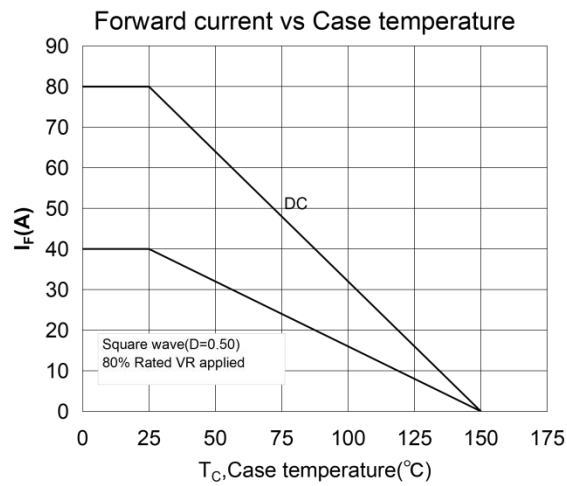
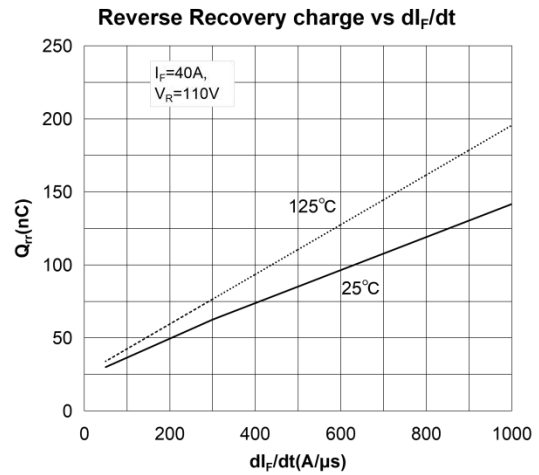
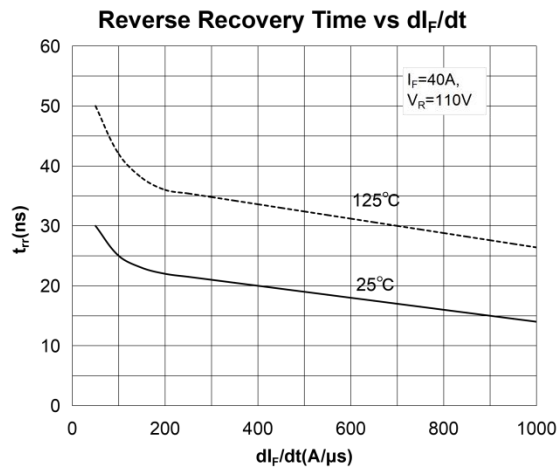
#### Absolute Maximum Ratings

| Parameter                                                          |            | Symbol                        | Test Conditions                                   | Value    | unit |
|--------------------------------------------------------------------|------------|-------------------------------|---------------------------------------------------|----------|------|
| Cathode to anode voltage                                           |            | $V_R$                         |                                                   | 220      | V    |
| Reverse DC Voltage                                                 |            | $V_{R(D)}$                    |                                                   | 220      |      |
| Average Forward Current                                            |            | $I_{F(AV)}$<br>Resistive Load | $T_C=25^{\circ}C$                                 | 160      | A    |
|                                                                    |            |                               | $T_C=100^{\circ}C$                                | 80       |      |
| Maximum continuous forward current                                 | per leg    | $I_F$                         |                                                   | 40       |      |
|                                                                    | per device |                               | 50Hz square wave duty = 1/2, $T_C = 100^{\circ}C$ | 60       |      |
| Single pulse forward current (Peak forward current per leg)@t=10ms |            | $I_{FSM}$                     |                                                   | 150      |      |
| Maximum repetitive forward current (per leg)                       |            | $I_{FRM}$                     |                                                   | 60       |      |
| Operating junction and storage temperature range                   |            | $T_J, T_{STG}$                |                                                   | - 55~150 | °C   |

**Electrical Specifications per diode( $T_J = 25\text{ }^{\circ}\text{C}$  unless otherwise specified)**

| Parameter                                | Symbol        | Test Conditions                                                                                                 | Min | Type | Max  | Unit                        |
|------------------------------------------|---------------|-----------------------------------------------------------------------------------------------------------------|-----|------|------|-----------------------------|
| Cathode to anode breakdown voltage       | $V_{BR}$      | $I_R = 100\text{ }\mu\text{A}$                                                                                  | 220 | -    | -    | V                           |
| Maximum forward voltage                  | $V_{FM}$      | $I_F = 30\text{ A}$                                                                                             | -   | 0.92 | 1    |                             |
|                                          |               | $I_F = 40\text{ A}$                                                                                             | -   | 1.05 | 1.15 |                             |
|                                          |               | $I_F = 40\text{ A}, T_J = 125\text{ }^{\circ}\text{C}$                                                          | -   | 0.95 | -    |                             |
| Maximum reverse leakage current          | $I_{RM}$      | $V_R = V_R\text{ rated}$                                                                                        | -   | -    | 15   | $\mu\text{A}$               |
|                                          |               | $T_J = 125\text{ }^{\circ}\text{C}, V_R = V_R\text{ rated}$                                                     | -   | -    | 250  |                             |
| Reverse recovery time                    | $t_{rr}$      | $I_F = 40\text{ A}, dI_F/dt = -100\text{ A}/\mu\text{s}, V_R = 110\text{ V}, T_J = 25\text{ }^{\circ}\text{C}$  | -   | 22   | 30   | ns                          |
| Reverse recovery charge                  | $Q_{rr}$      |                                                                                                                 | -   | 50   | -    | ns                          |
| Reverse recovery current                 | $I_{RRM}$     |                                                                                                                 | -   | 3.5  | -    | A                           |
| Reverse recovery time                    | $t_{rr}$      | $I_F = 40\text{ A}, dI_F/dt = -100\text{ A}/\mu\text{s}, V_R = 110\text{ V}, T_J = 125\text{ }^{\circ}\text{C}$ | -   | 36   | 42   | ns                          |
| Reverse recovery charge                  | $Q_{rr}$      |                                                                                                                 | -   | 60   | -    | nC                          |
| Reverse recovery current                 | $I_{RRM}$     |                                                                                                                 | -   | 6.5  | -    | A                           |
| Thermal resistance from junction to case | $R_{th(j-c)}$ | Per device                                                                                                      |     | 0.45 |      | $^{\circ}\text{C}/\text{W}$ |

**Typical characteristic curve(per )**




## Package outline dimension

